AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A radio frequency ("RF") power amplifier with high output efficiency operating in a switched mode at a predetermined frequency band, said amplifier comprising:

a semiconductor device having a control terminal and two conducting terminals, said semiconductor device capable of a conductive state and a nonconductive state, wherein said control terminal controls the conductance across said two conducting terminals, wherein a first of said two conducting terminals is tied to ground potential, wherein a second of said two conducting terminals comprises the output of said amplifier;

a RF source coupled to said control terminal of said semiconductor device; ~~and~~

a resonant inductor circuit coupled to said second of said two conducting terminals for eliminating the capacitance between said two conducting terminals when said semiconductor device is in said nonconductive state;

a subharmonic filter coupled to said second of said two conducting terminals, the subharmonic filter having a passband that passes subharmonic frequencies of said predetermined frequency band at said second of said conducting terminals to a termination circuit to reduce said subharmonic frequencies of said predetermined frequency band; and

a low frequency termination circuit coupled to said second of said two conducting terminals through said resonant inductor circuit.

2. (original) The RF power amplifier of claim 1 wherein said RF source is a sinusoidal wave.

3. (original) The RF power amplifier of claim 1 wherein said RF source is a rectangular wave.

4. (original) The RF amplifier of claim 1 wherein said RF source is a square wave.

5. (original) The RF power amplifier of claim 1 wherein said semiconductor device is a field effect transistor.

6. (currently amended) The RF amplifier of ~~claim 4~~ claim 5 wherein said field effect transistor is a metal oxide silicon field effect transistor.

7. (original) The RF amplifier of claim 1 wherein said semiconductor device is a bipolar transistor.

8. (previously presented) The RF amplifier of claim 7 wherein said bipolar transistor is an insulated gate bipolar transistor.

9. (original) The RF amplifier of claim 1 wherein said semiconductor device is a plurality of discrete transistors arranged in a parallel configuration sharing said RF source.

10. (original) The RF amplifier of claim 9 wherein said plurality of discrete transistors are arranged in a kilowatt power transistor configuration.

11. (previously presented) The RF amplifier of claim 1 wherein said subharmonic filter includes a low pass filter that has said termination circuit for terminating subharmonic signals, said termination circuit coupling said subharmonic filter to ground potential.

12. (currently amended) The RF power amplifier of claim ~~14~~ 1 wherein said resonant inductor circuit comprises:

an inductor; and

a DC voltage source coupled to said inductor.

13. (currently amended) The RF power amplifier of claim ~~14~~ 1 wherein said resonant inductor circuit modifies the load impedance of said semiconductor device in said conductive state.

14. (cancelled)

15. (currently amended) The RF amplifier of claim ~~14~~ 1 wherein said low frequency termination circuit provides controlled impedance around said predetermined frequency band.

16. (original) The RF amplifier of claim 15 wherein said RF source is stable into all voltage standing wave ratio ("VSWR") load conditions over the dynamic range of output power.

17. (cancelled)

18. (cancelled)

19. (original) The RF amplifier of claim 1 wherein the output of said RF source is fixed.

20. (original) The RF amplifier of claim 1 wherein the output of said RF source is varied.

21. (previously presented) A radio frequency ("RF") power amplifier with high output efficiency operating in a switched mode at a predetermined frequency band, said amplifier comprising:

a discrete transistor having a gate terminal, a source terminal, and a drain terminal, said drain terminal in a grounded configuration, said source terminal comprising the output of said amplifier;

a RF source coupled to said gate terminal of said discrete transistor;

a resonant inductor circuit coupled to said source terminal for eliminating the capacitance between said drain terminal and said source terminal when said discrete transistor is in an off state;

a subharmonic filter coupled between said source terminal and ground, the subharmonic filter including a low pass filter having a cutoff frequency to pass subharmonic frequencies of said predetermined frequency band at said source terminal to a termination circuit of said subharmonic filter to reduce said subharmonic frequencies of said predetermined frequency band; and

a low frequency termination circuit coupled to said source terminal through said resonant inductor circuit.

22. (original) The RF power amplifier of claim 21 wherein said RF source is a sinusoidal wave.

23. (currently amended) The RF power amplifier of claim 21 wherein said RF source is a square wave.

24. (original) The RF power amplifier of claim 21 wherein said RF source is a rectangular wave.

25. (original) The RF power amplifier of claim 21 wherein said resonant inductor circuit comprises:

an inductor; and

a DC voltage source coupled to said inductor.

26. (original) The RF amplifier of claim 21 wherein said discrete transistor is a field effect transistor.

27. (original) The RF amplifier of claim 21 wherein said discrete transistor is a metal oxide silicon field effect transistor.

28. (original) The RF amplifier of claim 21 wherein said discrete transistor is a bipolar transistor.

29. (original) The RF amplifier of claim 21 wherein a plurality of said discrete transistors are arranged in a parallel configuration sharing said RF source.

30. (original) The RF amplifier of claim 29 wherein said plurality of said discrete transistors are arranged in a kilowatt power transistor configuration.

31. (original) The RF power amplifier of claim 21 wherein said resonant inductor circuit modifies the load impedance of said discrete transistor in said conductive state.

32. (previously presented) The RF power amplifier of claim 21 wherein said low frequency termination circuit includes a low pass filter having a passband that passes spurious low frequency signals.

33. (previously presented) The RF amplifier of claim 32 wherein said low frequency termination circuit provides controlled impedance around said predetermined frequency band.

34. (currently amended) A radio frequency ("RF") power amplifier with high output efficiency operating in a switched mode at a predetermined frequency band, said amplifier comprising:

a discrete transistor having a gate terminal, a source terminal, and a drain terminal, said source terminal in a grounded configuration, said drain terminal comprising the output of said amplifier;

a RF source coupled to said gate terminal of said discrete transistor; ~~and~~

a resonant inductor circuit coupled to said drain terminal for eliminating the capacitance between said drain terminal and said source terminal when said discrete transistor is in an off state;

a subharmonic filter coupled to said drain terminal and ground, the subharmonic filter having a passband that passes subharmonic frequencies of said predetermined frequency band at said drain terminal to a termination circuit to reduce said subharmonic frequencies of said predetermined frequency band; and

a low frequency termination circuit coupled to said drain terminal through said resonant inductor circuit.

35. (original) The RF power amplifier of claim 34 wherein said RF source is a sinusoidal wave.

36. (currently amended) The RF power amplifier of claim 34 wherein said RF source is a square wave.

37. (original) The RF power amplifier of claim 34 wherein said RF source is a rectangular wave.

38. (currently amended) The RF power amplifier of claim ~~45~~ 34 wherein said resonant inductor circuit comprises:

an inductor; and

a DC voltage source coupled to said inductor.

39. (original) The RF amplifier of claim 34 wherein said discrete transistor is a field effect transistor.

40. (original) The RF amplifier of claim 39 wherein said discrete transistor is a metal oxide silicon field effect transistor.

41. (original) The RF amplifier of claim 34 wherein said discrete transistor is a bipolar transistor.

42. (original) The RF amplifier of claim 34 wherein a plurality of said discrete transistors are arranged in a parallel configuration sharing said RF source.

43. (original) The RF amplifier of claim 42 wherein said plurality of said discrete transistors are arranged in a kilowatt power transistor configuration.

44. (currently amended) The RF power amplifier of claim ~~45~~ 34 wherein said resonant inductor circuit modifies the load impedance of said discrete transistor in said conductive state.

45. (cancelled)

46. (currently amended) The RF amplifier of claim ~~45~~ 34 wherein said low frequency termination circuit provides controlled impedance around said predetermined frequency band.

47. (currently amended) The RF amplifier of claim ~~14~~ 34 wherein said subharmonic filter includes a low pass filter that has said termination circuit for terminating subharmonic signals, said termination circuit coupling said subharmonic filter to ground potential.

48. (currently amended) The RF amplifier of claim ~~14~~ 34 wherein said termination circuit for terminating subharmonic signals comprises a resistance.

49. (currently amended) The RF amplifier of claim ~~14~~ 1 wherein the RF amplifier is a class E amplifier without RF broadband feedback.

50. (cancelled)

51. (previously presented) The RF amplifier of claim 21 wherein the RF amplifier is a class E amplifier without broadband RF feedback.

52. (previously presented) The RF amplifier of claim 21 wherein the termination circuit for terminating subharmonic frequencies is a resistance.

53. (currently amended) The RF amplifier of claim ~~45~~ 34 wherein said subharmonic filter includes a low pass filter that has said termination circuit for terminating subharmonic signals, said termination circuit coupling said subharmonic filter to ground potential.

54. (previously presented) The RF amplifier of claim 53 wherein the termination circuit for terminating subharmonic signals comprises a resistance.

55. (currently amended) The RF amplifier of claim ~~45~~ 34 wherein the RF amplifier is a class E amplifier without broadband RF feedback.

56. (currently amended) The RF amplifier of claim ~~14~~ 1 wherein said low frequency termination circuit includes a low pass filter having a passband that passes spurious low frequency signals and substantially blocks the baseband signal at the fundamental frequency.

57. (currently amended) The RF amplifier of claim ~~45~~ 34 wherein said low frequency termination circuit includes a low pass filter having a passband that passes spurious low frequency signals and substantially blocks the baseband signal at the fundamental frequency.